

WHAT IS CLAIMED IS:

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1. A data recording method for calculating a digital sum value (DSV) corresponding to a proportion of positive data and negative data included in predetermined data ranges, selecting a resync pattern to be inserted between the data ranges according to the DSV, and inserting the selected resync pattern between the data ranges, the data recording method comprising a step of selecting a resync pattern that minimizes differences in DSV between the data ranges.
 2. The data recording method as claimed in claim 1, comprising the steps of:
 - calculating a first DSV of a first data range;
 - calculating a second DSV of both a second data range continuous with the first data range and a first resync pattern;
 - calculating a third DSV of the second data range and a second resync pattern;
 - selecting either the second or the third DSV depending on whichever differs less from the first DSV; and
 - inserting either the first resync pattern or the second resync pattern between the first data range and the second data range depending on either the second DSV or the third DSV, whichever is selected.

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5 3. The data recording method as claimed in
claim 2, wherein the second resync pattern inverts
the positive data and the negative data included in
the second data range.

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15 4. The data recording method as claimed in
claim 2, wherein the step of selecting either the
second or the third DSV depending on whichever
differs least from the first DSV involves selecting
either the second DSV or the third DSV whenever the
difference between either the second or third DSV
and the first DSV is less than a predetermined value.

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25 5. A data reproduction method for
calculating an amount of change in a DC component of
a reproduction wave form, correcting an expected
value in response to a moving average value of the
amount of change in the DC component, and
reproducing data in response to the corrected
expected value, the method comprising the steps of:
30 calculating a present amount of change in
the DC component;
 calculating a moving average value of the
present DC component change amount and a previous DC
component change amount;
35 calculating a moving average value of
predetermined data blocks according to a first
divisor used to calculate the moving average value;

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and

calculating a moving average value of a resync pattern portion inserted between the predetermined data blocks according to a second divisor used to calculate the moving average value that is less than the first divisor used to calculate the moving average value.

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6. The data reproduction method as claimed in claim 5, wherein the first divisor used to calculate the moving average value and the second divisor used to calculate the moving average value can be varied.

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7. The data reproduction method as claimed in claim 5, wherein a width of the resync pattern can be varied.

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8. The data recording method as claimed in claim 5, wherein the data reproduction method further comprises the steps of:

storing one or more moving average values of the predetermined data blocks in a storage unit; and

selecting one of the moving average values stored in the storage unit and setting the selected moving average value as an initial moving average value for the predetermined data blocks.

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5 9. A data recording device for calculating
a digital sum value (DSV) corresponding to a
proportion of positive data and negative data
included in predetermined data ranges, selecting a
resync pattern to insert between the data ranges
10 according to the DSV, and inserting the selected
resync pattern between the data ranges, the data
recording device comprising a unit for selecting a
resync pattern that minimizes differences in DSV
between the data ranges.

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10. The data recording device as claimed in
20 claim 9, comprising:

a first calculating unit for calculating a
first digital sum value (DSV) of a first data range;

a second calculating unit for calculating a
second DSV of both a second data range continuous
25 with the first data range and a first resync
pattern;

a third calculating unit for calculating a
third DSV of the second data range and a second
resync pattern;

30 a selecting unit for selecting either the
second or the third DSV depending on whichever
differs less from the first DSV; and

an inserting unit for inserting either the
first resync pattern or the second resync pattern
35 between the first data range and the second data
range depending on either the second DSV or the
third DSV, whichever is selected.

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5 11. The data recording device as claimed in
claim 9, wherein the second resync pattern inverts
the positive data and the negative data included in
the second data range.

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12. The data recording device as claimed in
claim 9, wherein either the second DSV or the third
15 DSV is selected whenever the difference between
either the second or third DSV and the first DSV is
less than a predetermined value.

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13. The data recording device as claimed in
claim 9, further comprising a data range setting
unit for setting a range of data to be used for
25 calculating the first, second and third DSV.

30 14. A data reproduction device for
calculating an amount of change in a DC component of
a reproduction wave form, correcting an expected
value in response to a moving average value of the
amount of change in the DC component, and
35 reproducing data in response to the corrected
expected value, the device comprising:

a present DC component change amount

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calculating unit for calculating a present amount of change in the DC component; and

5 a moving average value calculating unit for calculating a moving average value of the present DC component change amount and a past DC component change amount,

10 the moving average value calculating unit for calculating a moving average value of a DC component change amount corresponding to predetermined data blocks according to a first divisor used to calculate the moving average value, the moving average value calculating unit
15 calculating a moving average value of a resync pattern portion inserted between the predetermined data blocks according to a second divisor used to calculate the moving average value that is less than the first divisor used to calculate the moving average value.

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15. The data reproduction device as claimed in claim 14, wherein the first divisor used to
25 calculate the moving average value and the second divisor used to calculate the moving average value can be varied.

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16. The data reproduction device as claimed in claim 14, wherein a width of the resync pattern
35 can be varied.

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17. The data reproduction device as claimed in claim 14, wherein the data reproduction device further comprises:

5 a storing unit for storing one or more moving average values of the predetermined data blocks; and

10 a selecting unit for selecting one of the moving average values stored in the storing unit and setting the selected moving average value as an initial moving average value for the predetermined data blocks.

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18. An optical recording medium on which data is recorded, the data having a resync pattern inserted between predetermined data ranges according to a digital sum value (DSV) corresponding to a proportion of positive data and negative data included in the data ranges, the resync pattern being such as to minimize differences in DSV between the data ranges.

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